

## Claims

1. A porous and spherical calcium phosphate particle having a particle diameter in a range of from 0.1 to 100  $\mu\text{m}$ , wherein the calcium phosphate is substituted with a metal ion or has a metal ion carried on the surface thereof, in a range of from 0.0001 to 10wt %.
2. The porous and spherical calcium phosphate particle as claimed in claim 1, characterized in that a porosity by a specific surface area/pore distribution measurement with BET method (specific surface area measurement method) is 20 % or more, and a specific surface area is 20  $\text{m}^2/\text{g}$  or more.
3. The porous and spherical calcium phosphate particle as claimed in claim 1 or 2, which is a porous particle formed from microcrystal of calcium phosphate by spray drying or the like.
4. The porous and spherical calcium phosphate particle as claimed in claim 1 or 2, characterized in that the metal ion substituted or carried on the surface is at least one of ions of zinc, magnesium, iron and copper.
5. A porous and spherical calcium phosphate particle, which is obtained by sintering the particle as claimed in any one of claims 1 to 4 at a temperature in a range of from 100 to 800°C.
6. The porous and spherical calcium phosphate particle as claimed in any one of claims 1 to 5, characterized in that a bio-adaptable polymer such as a biopolymer or a polyethylene glycol is applied to or carried on the surface thereof.
7. The porous and spherical calcium phosphate particle as claimed in claim 6, characterized in that the biopolymer is glycosaminoglycan.

8. A porous multilayer spherical particle, characterized in that the porous and spherical calcium phosphate particle as claimed in any one of claims 1 to 7 is covered with a porous inorganic material.
9. The porous multilayer calcium phosphate spherical particle as claimed in claim 8, characterized in that the porous inorganic material is a calcium phosphate-based material or a calcium carbonate-based material.
10. The porous multilayer calcium phosphate spherical particle as claimed in claim 8 or 9, characterized in that a bio-adaptable polymer such as a biopolymer or polyethylene glycol is carried thereon.
11. The porous multilayer calcium phosphate spherical particle as claimed in claim 10, characterized in that the biopolymer is glycosaminoglycan.